

The Mason-Dixon Astronomer



November Meeting:

- Wed., November 13th – 7:30pm
Bear Branch Nature Center
- **Telescope Buyers Workshop...**
Just in time for the holidays...a workshop on how to buy astronomical equipment

Pre-Meeting Dinner

- Wed., November 13th – 6pm.

Harry's Main Street Grill -
65 W Main Street
Westminster, MD 21157

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St*r Points

Comet Surprise?

November 2013 – Curt Roelle

This fall's big astronomical mystery is Comet ISON (C/2012 S1), the new comet discovered in Russia on September 21, 2012. While the initial enthusiastic predictions have been walked back, observers generally remain optimistic that the comet will be well worth observing as it rounds the sun later this month.

In his Astronomical Calendar for 2013, Guy Ottewell declared ISON could "become a daylight-brilliant immense-tailed sungrazer, to rival the few great ones of the past few centuries." By June, comet expert John Bortle was a bit more subdued, saying that "from January through May Comet ISON brightened hardly at all, remaining stuck at magnitude 16 or 15 and falling nearly two magnitudes behind the early predictions." In August, Sky and Telescope magazine's Alan MacRobert seemed to be preparing observers for the worst, saying "the comet could still turn out to be fairly good, or it might never reach naked-eye visibility at all."

The comet is getting a little brighter. By late October it had reached magnitude 9. That is still about 16 times fainter than the theoretical unaided-eye limit of magnitude 6.

In October, my friend Tom saw the comet from his mountain-top West Virginia house (elevation 4440') using a very large telescope equipped with a 24"-diameter mirror. One morning in late October I attempted to observe ISON using only a 12" telescope, but the interfering light from the 3rd quarter moon washed out the faint comet.

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President's Message

November 2013 - Vanessa Thomas

Dear WASI members,

Happy November! I can't believe we're getting so close to the end of 2013 already.

At the beginning of this year, the other newly elected officers and I identified a few things we might do to help improve the club a little. We decided to start our club meetings with our guest speakers (when we had guest speakers) instead of having our guests and attendees wait through club announcements to get to the good stuff. We decided to set an agenda for each meeting so the meetings wouldn't ramble on and on. We resolved to have regular officer meetings to keep on top of club finances and to generally keep information and discussions flowing. With the strong support of Steve Conard and Paul Henze, we resolved to revive the members' observing night each month. We've endeavored to push forward progress on the observatory. We also updated our very out-of-date WASI brochure. I think we've done fairly well on these goals, and I hope you've noticed some small improvements.

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November Meeting...

Telescope Buyers Workshop

Join James Chen and the Westminster Astronomical Society for the annual, Telescope Buyers Workshop.

James Chen will provide insight and information about choosing the correct astronomical gear. Just in time for the holidays find out how to make good decisions and maybe even save some money while picking out that perfect gift for the special person on your list...even if that special person is you!

James Chen: Retired Department of the Navy and Federal Aviation Administration Radar and Surveillance Systems Engineer. Guest lecturer at local Washington DC/Northern Virginia/Maryland astronomy clubs on amateur astronomy topics of eyepiece design and optical filters. Author of a short Astronomy Magazine article on Dobsonian telescope design November 1989. Served as a sales consultant to two Washington DC area telescope stores for over 30 years

Upcoming Events From Our Calendars

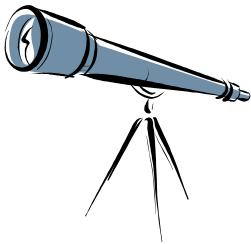
- ❖ **Monthly Meeting** November 13th, 7:30 p.m., at Bear Branch Nature Center (BBNC)
- ❖ **Soldiers Delight Public Stargazing** November 9th, 8 p.m., at Soldiers Delight Natural Environment Area in Owings Mills
- ❖ **Planetarium Show** November 16th, 7:30 p.m., at Bear Branch Nature Center (BBNC)

Join The Westminster Astronomical Society...

Joining WASI gives you a great opportunity to meet fellow astronomers and provides group memberships to the [Astronomical League](#) and the [International Dark-Sky Association](#). Additionally, benefits include access to our [Library](#) (over 500 astronomy-related books), the ability to borrow [club scopes](#), a subscription to the Astronomical League's *Reflector*, access to members-only observing sessions and sites, and club discounts on astronomical magazine subscriptions.

Membership is still only \$25 per year.

<http://www.westminsterastro.org>



St*r Points for November...

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A recent email message announced a new “comet outburst.” I thought ISON had finally decided to get with it by pouring on the coal and living up to all of our expectations. Unfortunately, it turned out to be a totally different comet. Comet C/2012 X1 (LINEAR) had suddenly burst from 14th to 8th magnitude – a 251-fold increase in brightness (but still six times too faint to see with the unaided eye).

This is reminiscent of the 2007 outburst of Comet Holmes (see my 2007 photos from [28-Oct](#), [17-Nov](#), [28-Nov](#), and [09-Dec](#)) during which it experienced a half-million times increase in brightness making it plainly visible to the unaided eye even in very bright urban environments. The comet had undergone a previous brightness outburst that was ongoing at the time of its 1892 discovery and, according to the Harvard-Smithsonian Center for Astrophysics, “has presented a mystery to astronomers ever since”.

One possibility expressed in the prestigious *Astrophysical Journal* involved a “fragmentation event” or splitting of the comet nucleus. However, the article concluded that, “if this had happened, there should be big fragments trailing the comet nucleus ...images, however, do not show any large fragments near the nucleus of comet 17P/Holmes. Therefore, this hypothesis must be ruled out.”

A commonly expressed theory states that Holmes’ extreme increase in brightness was impact-related, involving an unfortunate encounter with a rogue asteroid. The energy involved in a collision would release quite a cloud. However, the chances of such a needle-in-a-haystack collision were discounted. *New Scientist* paraphrased the late Brian Marsden, former director of the International Astronomical Union’s Minor Planet Center, as saying, “it’s hard to believe that this comet, among all those that pass through the asteroid belt, has been struck twice by objects in the belt -- once in 1892 and again [in 2007].”

According to the late Washington-based astronomer Tom Van Flandern, the impact theory was on the right track, but it wasn’t asteroids that hit Holmes. He first introduced his “satellite model for comets” in a 1981 paper published in the journal *Icarus*. According to this model, comets as well as planets can be surrounded by satellites or moons within the parent body’s gravitational “sphere of influence.”

Under Van Flandern’s model, when a comet has an encounter with another body, particularly the sun or Jupiter, its orbit can be altered. Also, tidal forces from the interacting body can compromise the comet’s sphere of influence disrupting the orbits of its satellites. According to astronomer Gary Kronk, Comet Holmes had encounters with Jupiter in 1908 and 2004. Respectively, these served to increase and decrease the comet’s distance from the sun.

An October, 2007 article by Baltimore Sun reporter Frank D. Roylance reported that “The late comet expert Fred Whipple theorized [in 1984] that Holmes might have had a satellite that crashed into it in 1892, causing that year’s odd flare-up.” In the same article Marsden objected, saying “even if he were right then, that satellite is long gone. And yet the same thing has happened again.” Thus, Marsden implies that the satellite impact can only be a one-time event.



Comet Holmes – 10/28/2007 – Curt Roelle



Comet Holmes – 11/17/2007 – Curt Roelle



Comet Holmes – 11/28/2007 – Curt Roelle

St*r Points for November...

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Van Flandern believed that a “debris cloud” of satellites surrounds Comet Holmes. Following the 2004 encounter with Jupiter that brought Holmes nearer to the sun, the next time the comet rounded the sun tidal forces were sufficient enough to disturb any loosely bound satellite into an unstable orbit, eventually causing it to crash into the comet. This might also have happened in 1892. Indeed, in the satellite model for comets, the supply of available satellites need not be limited to just one. “Such major outburst events are a natural occurrence in the satellite model for comets because there is a large supply of candidate satellites vulnerable to tidal decay or gravitational disruption,” wrote Van Flandern.

Besides the two comets mentioned above, there have been other comet outbursts as well. Comet P/Halley experienced a sudden 6 magnitude (200 fold) outburst in 1991. Comet 29P/Schwassmann-Wachmann 1 has experienced multiple outbursts in brightness, sometimes as great as 7-8 magnitudes.



Thomas C. Van Flandern

In a private email sent to this writer following Comet Holmes' 2007 outburst, Dr. Van Flandern noted how all the elements for his explanation of cometary outbursts were already in place in his satellite model for comets. Nothing new had to be added or modified for this explanation unlike “mainstream” theories that could not account for it without patching together new hypothesis.

It is time for us to get back on subject regarding what to expect from Comet Ison.

The comet is in the morning sky, where it will remain until the end of November when it rounds the sun on Thanksgiving Day, the 28th. Until then, it will be getting lower in the sky but should also be brightening and possibly developing a tail. By early December it will be in the evening sky getting higher and fainter each night.

How bright will it get? The comet's brightening is behind schedule. It's hard to find firm estimates on the web. Most just say it could reach naked eye brightness, a far cry from earlier predictions of its being visible in broad daylight. Even so, it will probably be visible in binoculars and tripod-mounted time exposures made with digital cameras.

Where to see it? Comet Ison will hang in the evening sky in early December, setting early in the evening. Your best bet is to search the web for finder charts or ask any friends who happen to be amateur astronomers. You may also wish to check the calendar on the Westminster Astronomical Society web site (WestminsterAstro.org) for public viewing opportunities at the organization's regularly scheduled programs.

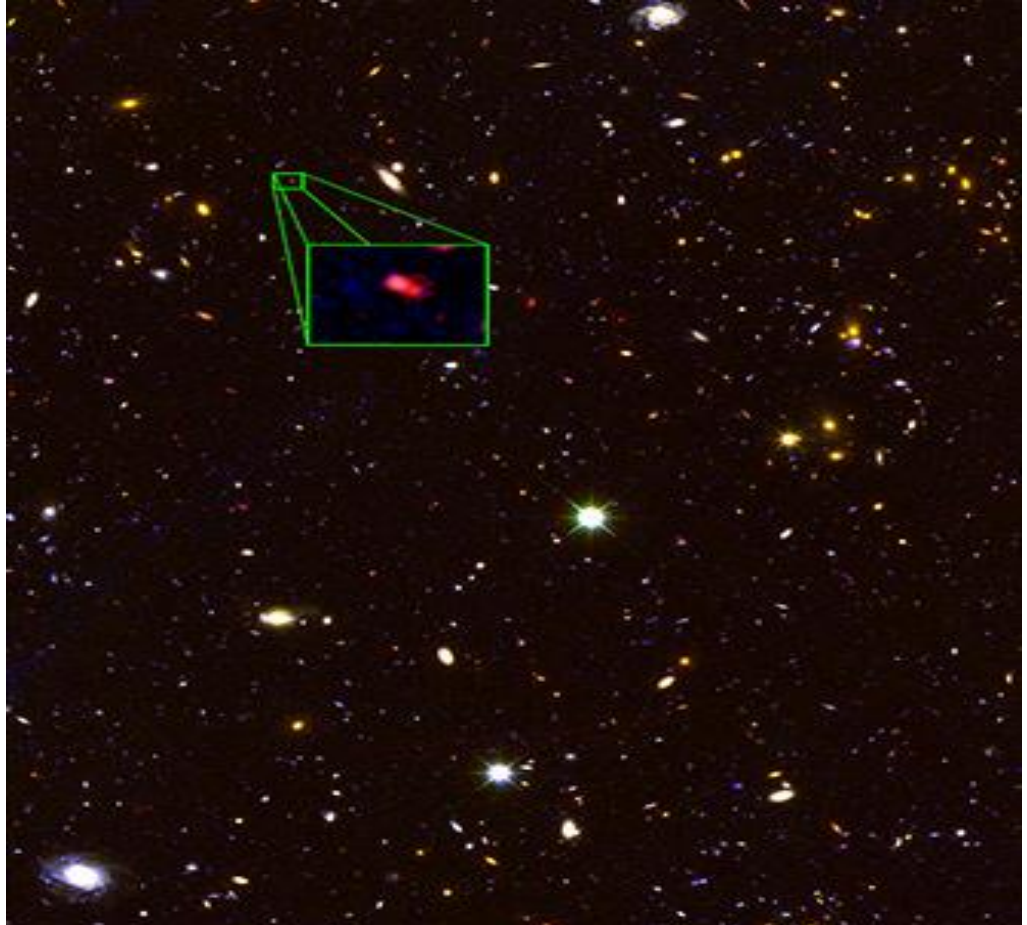
President's Message

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Of course, much more could be done to improve our merry club. If you see room for improvement somewhere, I hope you will feel free to share your ideas and suggestions with me or one of the other officers. The officers include Christian Ready (1st vice president), Tony Falletta (2nd vice president), and Skip Bird (treasurer). You can also share your thoughts with our board members Curt Roelle, Brian Eney, or Dave Gede. If you have suggestions regarding the website or the planetarium, you can speak to Jim Reynolds, our webmaster and planetarium director (and past president). Suggestions for our newsletter, the Mason-Dixon Astronomer, can go to Dave Gede. If you think an idea is worthy of discussion and sharing with the larger group, you can also make suggestions by sending email to the WASI mailing list on Yahoo!

Now for something really cool. The pinkish smudge in the Hubble image below is a galaxy that is farther away than any other galaxy whose distance we have measured. It's from a time when the universe was only 680 million years old. It was discovered in a survey using Hubble, and its distance measured with a spectroscope on the Keck I telescope in Hawaii. Besides the mind-blowing distance of this ancient galaxy, aren't all the other galaxies scattered throughout the background marvelously wonderful, too?

Amazed again,
Vanessa



Thomas V. Appler II (1946 – 2013) – Charter member passes...

By: Curtis Roelle

WASI charter member Tom Appler passed away at home on Sunday, Sept. 29, 2013 after a long struggle from the effects of diabetes. He was 73.

Tom joined WASI in November, 1984, at the organization's first business meeting. At that meeting the roles of the various elected club officers was established. The four offices of President, Vice President, Treasurer, and Secretary were created. However, to avoid tie votes among officers, a fifth office was required. Tom proposed the position of Director at Large (known today as 2nd Vice President) and was elected to that position at the same meeting.

Tom was a very active member, attending all meetings and many star parties with his young son John until ill health affected his ability to participate. At one point Tom's brother Ron was also a member. Tom enjoyed observing with his 10" Newtonian Reflector.

In 2007 Tom was granted lifetime membership in WASI. According to his obituary in the Carroll County Times, Tom "enjoyed sitting on the porch of his Deep Creek Lake cabin, fishing, astronomy, ham radio, coin collecting, Bible study and watching his grandchildren."

Comet Halley Watch Public Star Party

WASI charter member Tom Appler (holding the Zeiss binoculars) shares a view with guests, at the December 14, 1985 Carroll County Halley Watch, of the famous comet. The location was an open field near Lake Hashawha, prior to the existence of the nearby Bear Branch Nature Center.



Star Points...

Due to the recent government shutdown the Star Points article for this month was not made available for publication. Our hope is that they will resume these articles in time for our December newsletter.



Outreach Spotlight

Solar sidewalk astronomy - sharing the sun with your community (February 2009)

I'm Jane Houston Jones. During the work week, I'm a Senior Outreach Specialist at Jet Propulsion Laboratory in California where I coordinate informal education for the Cassini Mission to Saturn. It's an exciting job, writing about Saturn, answering questions from the public, and working with museums and planetariums. I'm also the Twitter "voice" of the Cassini spacecraft, "tweeting" 140-character micro blogs "from" the spacecraft to over 7,000 enthusiastic Twitter followers. And I coordinate a 400-member international outreach network called the Saturn Observation Campaign.

Outreach may be my day job, but since I am a sidewalk astronomer too, astronomical outreach is also my hobby! I belong to the Old Town Sidewalk Astronomers club, an informal group of about 10 amateur astronomers. We do about 5-10 events per month. In 2008 we conducted 50 public service events for nearly 5,000 people. In 2007 it was double that. We like to show the sun, moon and planets to the community while conducting sidewalk astronomy events.



Sidewalk astronomy is an informal way of bringing the universe to your community. On a sunny day I might take one of my telescopes down to a busy sidewalk in my town, park the car, unload and aim a solar safe telescope at the sun. I make sure that I have a ladder or stepstool so the younger visitors can reach the eyepiece. I also have a sign on the telescope explaining to people never to look "directly" at the sun, or without a trained astronomer using a solar safe telescope. Before heading out, I take a look at several solar websites (including SOHO) and print out that day's solar activity images. This way I can point out any interesting features to my guests, or if I have a helper, he or she can show the people in line what to expect at the telescope eyepiece.

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I have telescopes equipped with two kinds of filters and I bring both of them out on the sidewalk. One has a white light filter that shows how the sun looks to the unaided eye. The viewer sees the photosphere, or the apparent surface of the sun, which has a temperature of 6,000 Celsius. You can say this is the sun you can "see" or what you see through a projection onto a piece of paper.

The other is an h-Alpha filter, which shows just one wavelength of light -the red light of hydrogen (wavelength of 656.3 nanometers). With this we see the next highest layer of the sun - the chromosphere (temperature between 6,000 and 20,000 C.) We need a filter to see this layer because the brighter photosphere layer below washes out the fainter chromosphere, just like a bright streetlight would wash out the light of a flashlight. What you see through an h-Alpha filter are ribbon dark colored filaments against the disk and prominences on the edge, many times longer than the diameter of the Earth!



Often, my Old Town Sidewalk Astronomers members are asked by a scout troop or an elementary school to bring a solar telescope to camp or school or a local museum and we are more than happy to oblige. We ask the coordinator to check a few things about the location and time of the proposed event to see if there are trees or buildings in the way of the sun at the time they want to hold their event. I also ask the requestor to choose a rain delay date in case we are clouded or rained out. And I always have a reserve "indoor" hands-on-activity in case of rain.



If you don't have a solar telescope, you might ask your local astronomy club to help out. If you have a telescope already, you can make solar filters or purchase them. I've made solar filters for almost all of my telescopes using the plans below and have purchased filters for the other telescopes. Both white light and h-alpha filters are available anywhere telescopes are sold. Solar projection using a pinhole projection is another safe way to view the sun. No matter what method or equipment you use, your viewers, just like mine, will be thrilled to have looked at their own star!

Useful resources: [Make your own solar filter](#) and [Make a pinhole projector](#).

Reprinted from the SOHO Outreach website – <http://sohowww.nascom.nasa.gov/outreach/past/Sidewalk/>